

INCOMING VERIFICATION NO-TEST TRUNK SD-25420-01
TESTS USING TEST SET SD-25187-01 (J24751A)
NO. 1 CROSSBAR OFFICES

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1. GENERAL

1.01 This section describes a method of testing 2-wire incoming verification no-test trunks from No. 4A toll switching offices using test set per SD-25187-01.

1.02 (Reserved for future use)

1.03 Test letters A, B, C, D, and E, coincide with the test letters of the associated No. 4A toll switching system — operational test practices.

1.04 Test F coincides with the No. 4A transmission tests — Test A.

1.05 The incoming trunks are equipped for delayed (controlled) ringing. The feature is not tested as the verification no-test network does not require it nor can it pass the ringing signal.

1.06 The trunks are optioned to provide MF-Wink Start (see 5.01).

1.07 Features ascribed to the trunks in the test description require the use of special markers.

1.08 This issue affects the Equipment Test List.

1.09 The tests and features covered are:

A. Busy Line Call: This test checks the ability of the trunk to recognize a busy line, connect to it, and return supervision signaling that the no-test train is cut through (loop supervision is not provided).

B. Idle Line Call: Tests the ability of the trunk to recognize an idle line — then cut through with loop supervision.

C. Failure To Connect: Tests the ability of the trunk to recognize a busy line, encounter a failure to connect to that line, and provide a signal signifying the failure.

D. Connector Busy: Tests the ability of the trunk to recognize a busy no-test connector and provide a signal signifying the condition.

E. Busy Line Disconnect — Connector Release: Tests the ability of the trunk to connect to a busy line and release when the busy line has released.

F. 1000 Hz Loss Measurement: Checks the one-way transmission loss of the incoming trunk circuit.

2. APPARATUS

2.01 The apparatus paragraph reference and requirements for each test is shown in Table A. Details of each item are covered in the indicated paragraphs.

NOTICE

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TABLE A

PARAGRAPH	NO. REQUIRED FOR TESTS					
	A	B	C	D	E	F
2.02	1	1	1	1	1	1
2.03	-	-	-	1	-	-
2.04	1	1	1	1	1	1
2.05	1	-	-	1	1	-
2.06	1	1	1	1	1	1
2.07	1	1	1	1	1	1
2.08	-	-	-	-	-	1
2.09	-	-	-	1	-	-
2.10	-	-	-	1	-	-
2.11	-	-	-	1	-	-
2.12	-	-	-	-	-	1
2.13	1	1	1	1	1	1
2.14	1	1	1	1	1	1
2.15	1	-	-	1	1	-
2.16	1	1	1	1	1	1
2.17	-	-	-	1	-	-
2.18	-	-	-	1	-	-

- 2.02 M15B Cord, equipped with HB Jones Plug per 315-CCT-RST at each end for connecting test set to multifrequency supply.
- 2.03 1W13A Cord, 3 feet long, equipped with two 360A tools.
- 2.04 2P9C Cord, 6 feet long, equipped with two 310 plugs.
- 2.05 2W38A Cord, 5 feet long, equipped with one 310 plug and one 471A jack.

- 2.06 3P6G Cord, 6 feet long equipped with two No. 310 plugs.
- 2.07 3P7A Cord, 12 feet long equipped with two No. 310 plugs.
- 2.08 3P12H Cord, 8 feet long equipped with one 309 plug and one 310 plug.
- 2.09 KS-6278 Tool, connecting clip.
- 2.10 547A Tool, connector for crossbar switch hold magnet.
- 2.11 548A Tool, connector for crossbar switch hold magnet.
- 2.12 23A Transmission Measuring Set (TMS) J94023A.
- 2.13 32A Test Set, remote control switch and cord.
- 2.14 Test Set J29751A (SD-25187-01) ("Test Wagon").
- 2.15 1014B Handset, equipped with 10 inch cord and 346A plug.
- 2.16 Operator Telephone Set.
- 2.17 548A Armature blocking tool.
- 2.18 KS-6320 Orange stick, 1-½ inch length cut from end.

3. PREPARATION

STEP	ACTION	VERIFICATION
1	Have the incoming trunk to be tested made busy at the originating-4A office. If the trunk is a trouble referral, it is assumed to be made busy.	NOR lamp lights.
2	Restore all test keys to normal.	
3	At the supplementary incoming trunk (SIT) frame, patch the test set jacks to the SIT frame as shown in Table B miscellaneous jacks.	

STEP	ACTION	VERIFICATION																	
TABLE B																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="404 346 607 455">CORDS</th> <th data-bbox="607 346 829 455">TEST SET JACK</th> <th data-bbox="829 346 1156 455">SIT FRAME MISC. JACK STRIP (SEE NOTE 1)</th> <th data-bbox="1156 346 1504 455">REMARKS</th> </tr> </thead> <tbody> <tr> <td data-bbox="404 455 607 540">2P9C</td> <td data-bbox="607 455 829 540">BAT (SEE NOTE 1)</td> <td data-bbox="829 455 1156 540">A</td> <td data-bbox="1156 455 1504 540">BATTERY SUPPLY.</td> </tr> <tr> <td data-bbox="404 540 607 597">3P6G</td> <td data-bbox="607 540 829 597">INT</td> <td data-bbox="829 540 1156 597">INT</td> <td data-bbox="1156 540 1504 597">INTERRUPTER SUPPLY.</td> </tr> <tr> <td data-bbox="404 597 607 691">3P7A</td> <td data-bbox="607 597 829 691">TST</td> <td data-bbox="829 597 1156 691">T (SEE NOTE 2)</td> <td data-bbox="1156 597 1504 691">TRUNK BEING TESTED.</td> </tr> </tbody> </table>				CORDS	TEST SET JACK	SIT FRAME MISC. JACK STRIP (SEE NOTE 1)	REMARKS	2P9C	BAT (SEE NOTE 1)	A	BATTERY SUPPLY.	3P6G	INT	INT	INTERRUPTER SUPPLY.	3P7A	TST	T (SEE NOTE 2)	TRUNK BEING TESTED.
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<p><i>Note 1:</i> To avoid possible grounding of the battery supply lead, connect the 2P9C cord to the test set first and, when disconnecting, remove the cord from the test set last.</p>																			
<p><i>Note 2:</i> T jack is found on jack strip provided for the trunks.</p>																			
4	Plug the operator telephone set into the TEL jack of the test set.																		
5	<p>Operate the following keys: RS DR-KP W AOS (If A relay is 5523) AOB (If A relay is B608)</p> <p><i>Note:</i> If AOB is not provided, AOS key normal provides the same function.</p> <p>AR No A Sh. (If provided)</p>																		
6a	If remote control is desired, insert the 32A test set plug into the RC jack of the incoming trunk test set. Operate the white and red buttons of the test set in place of the ST and DSC keys, respectively, as called for in test.																		
7	Connect multifrequency supply to the test set by patching the M15B cord from the multifrequency supply socket at the SIT frame to the HB Jones socket in the test set.																		

4. METHOD

STEP	ACTION	VERIFICATION
All Tests		
	<p><i>Note:</i> In making Tests A, D, and E, it is necessary to establish calls to the route verification test number line appearance. These calls should be originated from the line circuit associated with the D or B jack located on the same SIT frame as the no-test trunk equipment is located.</p> <p>The 1014B handset, equipped with a 2W38 cord is used to access the SIT frame D or B jack for the purpose of originating the required calls.</p>	
8	Operate the ST key.	NOR lamp extinguished. TC lamp lights momentarily. KN (key number) lamp lights.
9	Operate the KP key. Hold this key operated for at least ¼ second.	
10	Key the test number on the MF key set ensuring that each key is fully depressed.	
	<p><i>Note:</i> If the trunk serves a multioffice terminating unit, the test number must be prefaced with the appropriate ABC or C digit/s.</p>	
11	Operate the AV key.	SUPV lamp lights. KN lamp extinguished.
A. Busy Line Call		
12	Using the 1014B handset and D or B jack, establish a call to the route verification test number termination.	Call completes and tone is heard.
13	Using the test set, establish a test call to the now busy route verification test number (Steps 8 through 11).	Call completes to busy route verification line termination. SUPV lamp extinguished. Tone is heard.
14	Momentarily operate DISC key.	NOR lamp lights as indication that circuit is normal.

STEP	ACTION	VERIFICATION
15	Unless other tests are to be made <i>on the same trunk</i> , remove the plug from the T jack of the trunk being tested. Remove the patching cords from the SIT frame miscellaneous jacks and the 1014B handset from the D or B jack.	
	B. Idle Line Call	
12	Using the test set, establish a call to the charge verification test number (Steps 8 through 11).	Call completes. SUPV lamp flashes. Interrupted tone is heard.
13	Momentarily operate DISC key.	NOR lamp lights as indication that circuit is normal.
14	Unless other tests are to be made on the same trunk, remove the plug from the T jack of the trunk being tested. Remove the patching cords from the SIT frame miscellaneous jacks.	
	C. Failure To Connect	
12	Using the test set, attempt to establish a call to the busy line test number (Steps 8 through 11).	SUPV lamp lights. Test call identifies called line as busy and fails on attempt to connect, using no-test train. 60 IPM tone is heard. <i>Note:</i> No. 1 crossbar requires a busy line to have an established path through the line link frame in order to establish a no-test connection. A line that is busy without a line link path, or has a line link path that the terminating special marker cannot identify, will fail a no-test connection. The trunk is then connected to 60 IPM tone to provide the operator with a "failure to connect" signal. The Number Group Block Relay Frame cross-connection field for the Busy Line test number must be cross-connected as NF=RO and NC=AO.

STEP	ACTION	VERIFICATION
		<p>This directs the special termination marker to attempt to find a path using the busy line test number at line link 00 primary switch 0 (HG-0).</p> <p>It is the intention of this test for the attempt to fail.</p>
13	Momentarily operate DISC key.	NOR lamp lights as indication that circuit is normal.
14	Unless other tests are to be made on the same trunk, remove the plug from the T jack of the trunk being tested. Remove the patching cords from the SIT frame miscellaneous jacks and the 1014B handset from the D or B jack.	
D. Connector Busy		
<p><i>Note:</i> This test causes a denial of no-test access to one half of the line link frame containing the line equipment (Col. Sw. Vert.) of the route verification test number.</p> <p>Steps 15 through 19 should be completed quickly.</p>		
12	Determine the Line Link and primary Switch (horizontal group) containing the line equipment associated with the route verification test number (see 5.01).	
13	Locate the no-test connector frame and the appearance of the desired line link access verticals (there are two). The connector is usually located on a miscellaneous frame (M-) at the no-test connector.	
14	<p>Determine which of the two no-test connector verticals provide special no-test channel access to the route verification line equipment.</p> <p>The even numbered vertical provides access to line link horizontal groups (primary switches 0-4) and the odd number vertical provides access to horizontal group (primary switches 5-9).</p>	

STEP	ACTION	VERIFICATION
15	<p>Block nonoperated the vertical hold magnet using the 548A Armature blocking tool or 1-½ inch length of KS-6320 orange stick, depending on the type of crossbar switch. (See Section 069-131-811.)</p> <p><i>Note:</i> This action prevents the operation of 5 line link no-test vertical magnets and possible false entrapment of crosspoints.</p>	
16	<p>Make the no-test connector channel busy by connecting ground to the winding of the vertical hold magnet.</p> <p>Use the 1W13A Cord with KS-6278 connecting clip and 547A or 548A connector attached. The use of the 547A or 548A depends on the type of crossbar switch. (See Section 069-131-811).</p>	
17	Using the 1014B handset and D or B jack, establish a call to the route verification test number.	Call completes and tone is heard.
18	Using the test set, attempt to establish a call to the route verification test number (Steps 8 through 11).	<p>SUPV lamp lights.</p> <p>Test call identifies called line as busy and no-test connector access is determined to be busy. 120 IPM tone is heard.</p>
19	At the no-test connector, remove the blocking tools and make busy ground cord.	
20	Using the test set, establish a test call to the now busy route verification test number (Steps 8 through 11).	<p>Call completes to busy route verification line termination.</p> <p>SUPV lamp extinguished.</p> <p>Tone is heard.</p>
21	Momentarily operate DISC key.	NOR lamp lights as indication that circuit is normal.
E. Busy Line Disconnect		
12	Using the 1014B handset and D or B jack, establish a call to the route verification test number termination.	Call completes and tone is heard.
13	Using the test set, establish a test call to the now busy route verification test number (Steps 8 through 11).	<p>Call completes to busy route verification line termination.</p> <p>SUPV lamp extinguished.</p> <p>Tone is heard.</p>

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STEP	ACTION	VERIFICATION
14	Disconnect the call established by the 1014B handset by operating its switch to the MON position.	SUPV lamp lights.
15	Operate the 1014B handset key to the TALK position.	Dial tone is heard. SUPV lamp remains lighted.
16	Operate the 1014B handset key to the MON position.	Dial tone is not heard.
17	Momentarily operate DISC key.	NOR lamp lights as indication that circuit is normal.
18	Unless other tests are to be made on the same trunk, remove the plug from the T jack of the trunk being tested. Remove the patching cords from the SIT frame miscellaneous jacks and the 1014B handset from the D or B jack.	
F. 1000 Hz Loss Measurement		
12	At TMS (see 2.12), using 3P12H cord (see 2.08), connect DIAL jack to TST jack of test set.	
13	Using 3P7A Cord (see 2.07), connect MEAS jack to T jack of trunk under test at SIT frame.	
14	Operate DIAL key.	
15	Using the test set, establish a call to the first appearance (PORT A) of the 106-Type loop around test line (Steps 8 through 11).	Call completes. SUPV lamp extinguished. 1000 Hz tone heard in receiver.
16	Operate MEAS key.	Loss measurement is registered on TMS meter.
17	Record TMS meter reading.	Loss is within ± 0.5 of maximum allowable circuit loss per SD-25420-011 -0.5 dB.
18	Operate AR key.	
19	Momentarily operate DSC key and remove patch cord from T jack.	NOR lamp lights.
20	Remove all cords and restore all keys.	

5. MAINTENANCE CONSIDERATIONS

5.01 The SD-25420-01 Incoming Trunk Circuit is furnished with E, ZH, and ZG wiring options. These options equip the trunk for incoming service from a 4A toll switching machine using MF-pulsing. Wink signaling is provided with the provision of battery towards the originating office on the T or R conductors for the following conditions:

TRK NOR	SDR SEIZED	SDR READY FOR PULSING	CALLED SUBS ANS
R	T	R	T

5.02 The AT&T Standard documentation (SD- and CD-25420-01) for the trunk do not provide references to the E, ZH, and ZG combination of wiring options. The trunk is referred to as "Incoming Trunk Circuit From Central A Switchboard". This nomenclature is obsolete when the trunk is integrated into the Verification No-Test Switched Network.

5.03 For the reasons covered in 5.01 and 5.02, SD-24520-01, Notes 103 and 106, are superseded only in the provision of the E, ZH, and ZG wiring option combination.

5.04 CD-25420-01 shall be considered amended as follows:

Title — **CROSSBAR SYSTEMS
NO. 1
INCOMING TRUNK CIRCUIT
FROM 4A TOLL SWITCHING SYSTEM
FOR OPERATOR VERIFICATION
NO TEST**

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Options ZG, ZH, and E provide wink start and battery on ring conductor-trunk normal.

1. PURPOSE OF CIRCUIT

Paragraph 1.1 is changed as follows:

1.1 This is a trunk circuit from a 4A Toll Switching System designed to give TSPS or residual switchboard operators access to subscribers lines in a local No. 1 Crossbar office by way of a dedicated, secure and protected switched network. It is arranged to connect to the called line on a "no-test" basis (ie, regardless of whether the line is idle or busy).

DESCRIPTION OF OPERATION-CHANGES

5. GENERAL

The second and third paragraphs are changed to read as follows:

The wink start signal provided for MF operation requires that when the trunk is normal battery and ground on the trunk conductors be poled as though the called subscriber were "on hook". When the sender is connected the trunk conductors are poled off hook. With the sender ready to receive MF pulses conductors are poled "on hook". The subscriber answers condition is of course "off hook".

The answer condition for a line that is found busy is not an indication of the "off hook" or "on hook" condition of the subscriber lines loop. "Off hook" means that the no test switching access is "cut through".

7. SEIZURE

The first paragraph is changed to read as follows:

When this circuit is seized by sender closure at the 4A office the (A) relay operates.

8. CONNECTION TO A SENDER

Paragraph 8.4 is changed as follows:

When an MF terminating sender is attached, the (T) relay is operated to remove the battery and ground supplied by the (A) relay which releases. The sender then provides reverse battery and ground than that provided by the (A) relay winding with the (T) relay nonoperated. When the sender is ready to receive MF pulses, it reverses the battery and ground to the same polarity as when the trunk was normal. The 4A sender "seeing" this reversal sends the MF pulses for the desired telephone number. When registration is completed, the sender operates the (D) relay and releases the (T) relay. The (T) relay released and the (D) relay operated, connects battery and ground to the "T" and "R" leads with the same polarity as the now disconnected sender. The (A) relay reoperates when the (T) relay releases and holds the slow release D operated.

5.05 SD-25420-01 should be marked "See Section 216-736-900PT paragraphs 5.01, 5.02, and 5.03".

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5.06 CD-25420-01 should be marked "See Section 216-736-900PT paragraphs 5.02 and 5.04".

6. REFERENCES

6.01 With the implementation of the verification no-test networks into No. 4A/4M toll system and Class 5 end offices supportive documentation is provided.

6.02 Existing documentation for No. 1 crossbar operator accessed no-test trunks is obsolete in part. These obsolescences are corrected by Part 5.

6.03 The following list provides a reference index of Bell System Practices associated with the testing of No. 1 crossbar verification no-test incoming trunks.

SECTION	TITLE
069-020-801	Apparatus — Method of Blocking Apparatus and Insulating Contacts

SECTION	TITLE
069-131-811	Apparatus — Method of Making Test Connections
201-010-900PT	Standard Numbers for Plant Test and Administrative Circuits
212-567-901PT	Verification No-Test Trunks — Operational Tests Using MTF SD-68587-4A Toll Switching Systems
212-567-902PT	Verification No-Test Trunks — Transmission Tests Using MTF SD-68587-4A Toll Switching Systems
212-571-900PT	Verification No-Test Trunks — Operational Tests Using IMTF SD-99604-4A Toll Switching Systems
212-571-901PT	Verification No-Test Trunks — Transmission Tests Using IMTF, SD-99604-4A Toll Switching Systems